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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/787,212	02/27/2004	Chien-Tsung Chang	BHT/3110-171	4700

7590 10/27/2006

TROXELL LAW OFFICE PLLC  
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FALLS CHURCH, VA 22041

EXAMINER
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KUHNS, ALLAN R

ART UNIT	PAPER NUMBER
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1732

DATE MAILED: 10/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/787,212

Applicant(s)

CHANG ET AL.

Examiner

Allan Kuhns

Art Unit

1732

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_.

1. Claims 1-11 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The claims require the presence of a "microscopic generating component" having "microscopic perforations". But the disclosure does not provide guidance concerning the number of the microscopic perforations required such that undue experimentation would be required of one of ordinary skill in the art to make a device which would produce the required bubble nucleation in fluid polymer material.

2. Claims 1-11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. First of all, claim 1 is indefinite because it states what the gas "can be" instead of what the gas is, and "The said high temperature gas" in clause b) of this claim lacks antecedent basis within the claims. Likewise, claims 3 and 4 state what the microbubble generating component "can be" rather than what it is, and claim 7 states a bubble size which "is capable" of being provided rather than what is provided. Also, claims 3-11 appear to be multiple dependent claims since claims in the preamble of dependent claims, the claims are not listed in the alternative. It is suggested that the preamble of dependent claims be amended to read (with claim 3 being used as an example): "The method of claims 1 or 2, wherein". In addition, relating back to claim 1, "said pressurization pump or the said high pressure gas storage tank" of claim 5 lacks antecedent basis within the claims. Clarification is required.

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3.The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4.Claims 1, 3 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vermeulen (3,986,709). Vermeulen discloses or suggests the basic claimed method and apparatus, utilizing nitrogen gas (column 2, line 54) as a foaming agent to form a foam of polymeric material including (1) providing high pressure gas which passes through a gas pipe or central bore 13 in a conveyance screw, (2) outputting the gas (which inherently would be heated as the polymer or Vermeulen is heated) through relatively small perforations (16 and 17) at a front portion of a conveyance screw shaft, and (3) blending a transferring bubbles to the polymeric material (i.e., forming a foam). It would have been obvious to one of ordinary skill in the art to provide for nucleation of bubbles and uniform distribution of the bubbles in the process of Vermeulen in order to form a commercially viable foamed article.

It is well known to form an extruder screw from a metal and thus it would have been obvious to one of ordinary skill in the art to form perforations or openings 16 and 17 of Vermeulen as a vented metal head, as in claim 3. In addition, Vermeulen teaches or suggest the use of a high pressure storage tank or cylinder 11 (column 2, lines 53-54), as in claim 5.

5. The initial word of each clause of claims 1 and 2 should not be upper case, and Figure 1 A contains apparent Chinese characters which must be removed.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allan Kuhns whose telephone number is (571) 272-1202. The examiner can normally be reached on Monday to Thursday from 7:00 to 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Johnson, can be reached on (571) 272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*Allan R. Kuhns*  
ALLAN R. KUHNS  
PRIMARY EXAMINER AU 1732  
10-24-06